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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,647	03/19/2001	Vickram R. Vathulya	US 010082	9983

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EXAMINER

BETTENDORF, JUSTIN P

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/811,647

Applicant(s)

VATHULYA, VICKRAM R.

Examiner

Justin P. Bettendorf

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

**DETAILED ACTION*****Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because in figure 5 the numbers on the abscissa need to line up with the respective grid lines (i.e. the numbers are offset to the left especially at -8.4 through -7). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities: On page 7, line 5 should be rewritten more clearly from “-jxc70” to something such as --  $jX_c$  70-- (i.e., with a space between the  $X_c$  and 70) and line 9 should be changed from “capacitance 58” to --capacitance 70”. Also, on page 7, lines 18-10 should be rewritten from “X is the capacitance 70 of the electronic device” to something such as --X is both the capacitance 70 of the electronic device and the inductor reactance 66-- because “ $X_c$ ” has been used to describe the capacitance 70 and line 9 makes it clear for the equation that the reactance of the inductor should be set equal to the capacitance. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Utsu et al. United States Patent No. 5,343,172.

Figure 1 of the Utsu et al. reference discloses an input terminal (that would necessarily be connected in use to a source having a source impedance in order for the circuit to work - i.e., the source and source impedance are inherent) and an input matching circuit 14 for amplifier 11. Figure 2B shows a negative resistor 211, which determines the input impedance (see col. 4, lines 39-40), in series with an inductor 221 both of which are in parallel with the input (i.e. source) and the amplifier capacitance 212 (see col. 4, lines 33-51).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 5-14, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utsu et al.

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The Utsu et al. reference discloses the claimed impedance transformer with a parallel inductor and capacitance but does not explicitly state that the inductor reactance is equal to the capacitance at the frequency of operation (with respect to claims 2, 10, and 16).

Nevertheless, as would have been well known to one of ordinary skill in the art, a parallel circuit is in resonance and has its greatest impedance at the condition of the inductor reactance being equal to the capacitance in a parallel circuit.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have set the inductor reactance equal to the capacitance at the frequency of operation in the impedance matching circuit of Utsu et al. because any other values of the inductor reactance would have caused losses (i.e. approached low impedance to ground) thereby suggesting the obviousness of the modification.

The Utsu et al. reference is silent with respect to claims 5, 7-9, 11-14, and 17-20 (i.e., the value of the negative resistor, the value of the normalized phase, and the ratio of signal voltage at an input of the power amplifier to the signal voltage at the source). Nevertheless, all of these parameters are considered result-effective variables. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have chosen the claimed values because such a modification would have been considered a mere optimization.

With respect to claim 6 (i.e., 50 Ohm impedance), the Utsu et al. reference discloses use as a microwave device (see the title of Utsu et al.) but is silent on the exact value of the impedance. Nevertheless, 50 Ohms is the conventional characteristic impedance used in microwave circuits. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have set the value of the matching impedance to 50 Ohms because,

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as the reference is silent on the impedance, any art-recognized equivalent impedance value would have been usable such as the conventional 50 Ohms.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Utsu et al. in view of Kleveland et al. WO 98/47190.

As noted above, the Utsu et al. reference discloses an impedance transformer utilizing an inductance but the reference discloses a spiral inductor (col. 4, line 38) and not the claimed bond wire inductor.

Nevertheless, the Kleveland et al. reference teaches that a bond wire is an art-recognized equivalent inductor to a spiral inductor in microwave integrated circuits (see figures 5 and 7 and page 10, lines 4-9 and lines 27-28).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted art-recognized equivalent bond wire inductors in place of the spiral inductors in the matching circuit of Utsu et al. as taught by Kleveland et al. because such a modification would have been considered a mere substitution of art-recognized equivalent inductors.

### *Conclusion*

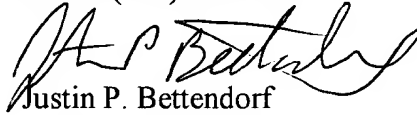
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Forward et al. United States Patent No. 4,180,786 discloses an impedance matching circuit using a negative resistance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin P. Bettendorf whose telephone number is (703) 308-2780. The examiner can normally be reached on 6:00-3:30 (M-F, 1st Friday off).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Justin P. Bettendorf

Primary Examiner

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jpb  
July 12, 2002